INITIAL STUDY FOR THE SESI PROPERTY CLOSURE PROJECT OTAY MESA AREA, SAN DIEGO, CALIFORNIA

VOLUME 2 OF 2

Prepared for:

COUNTY OF SAN DIEGO
DEPARTMENT OF ENVIRONMENTAL HEALTH
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APPENDIX II CONSTRUCTION EMISSIONS

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Scraper (3)

 3×8 hr/day $\times 70\%$ utilization = 16.8 hr/day SCAQMD Handbook presents emission factors for scrapers CO = 16.8 hr/day \times 1.25 lb/hr = 21.0 lb/day NOx = 16.8 hr/day \times 3.84 lb/hr = 64.5 lb/day ROG = 16.8 hr/day \times 0.27 lb/hr = 4.5 lb/day SOx = 16.8 hr/day \times 0.46 lb/hr = 7.7 lb/day PM₁₀ = 16.8 hr/day \times 0.41 lb/hr = 6.9 lb/day

Motor Grader (1)

1 x 8 hr/day x 100% utilization = 8 hr/day SCAQMD Handbook presents emission factors for motor graders CO = 8 hr/day x 0.151 lb/hr = 1.2 lb/day NOx = 8 hr/day x 0.713 lb/hr = 5.7 lb/day ROG = 8 hr/day x 0.039 lb/hr = 0.3 lb/day SOx = 8 hr/day x 0.086 lb/hr = 0.7 lb/day PM₁₀ = 8 hr/day x 0.061 lb/hr = 0.5 lb/day

Dozer (Wheel loader) (1)

1 x 8 hr/day x 30% utilization = 2.4 hr/day SCAQMD Handbook presents emission factors for wheel loaders CO = 2.4 hr/day x 0.572 lb/hr = 1.4 lb/day NOx = 2.4 hr/day x 1.9 lb/hr = 4.6 lb/day ROG = 2.4 hr/day x 0.23 lb/hr = 0.6 lb/day SOx = 2.4 hr/day x 0.182 lb/hr = 0.4 lb/day PM₁₀ = 2.4 hr/day x 0.17 lb/hr = 0.4 lb/day

Excavator (1)

1 x 8 hr/day x 20% utilization = 1.6 hr/day SCAQMD Handbook presents horsepower for excavators at 151.7 1.6 hr/day x 151.7 hp = 242.7 hp-hr/day SCAQMD Handbook presents load factors for excavators at 58% 242.7 hp-hr/day x 0.58 = 140.8 hp-hr/day SCAQMD Handbook presents emission factors for excavators by hp-hr

CO = 140.8 hr/day \times 0.011 lb/hr = 1.5 lb/day NOx = 140.8 hr/day \times 0.024 lb/hr = 3.4 lb/day ROG = 140.8 hr/day \times 0.001 lb/hr = 0.1 lb/day SOx = 140.8 hr/day \times 0.002 lb/hr = 0.3 lb/day PM₁₀ = 140.8 hr/day \times 0.0015 lb/hr = 0.2 lb/day

Vehicle Emissions

It is estimated that as many as 50 workers and 14 trucks per day could be used fro site closure. Vehicle emissions were based on emission factors included in model year 2002 run of the CARB MVEI7G computer model (included with this submittal). For the purposes of this analysis, all trucks were assumed to be medium-heavy diesel trucks and all construction employee trips were assumed to be light-duty trucks (e.g., pick-up trucks and SUVs). Emissions were based on the average emissions per mile as predicted in the MVEI7G model. All vehicles were assumed to have a round-trip of 20 miles. The emission factors also include such things as start, hot soak, running losses, and fuel evaporation.

Worker Commutes

CO = 210.32 tons/day \times 2,000 lb/ton / 19,534,000 mi/day \times 14 trips \times 20 mi/trip = 6.0 lb/day NOx = 27.79 tons/day \times 2,000 lb/ton / 19,534,000 mi/day \times 14 trips \times 20 mi/trip = 0.8 lb/day ROG = 20.07 tons/day \times 2,000 lb/ton / 19,534,000 mi/day \times 14 trips \times 20 mi/trip = 0.6 lb/day SOx = 0.00 tons/day \times 2,000 lb/ton / 19,534,000 mi/day \times 14 trips \times 20 mi/trip = 0.0 lb/day PM₁₀ = 0.54 tons/day \times 2,000 lb/ton / 19,534,000 mi/day \times 14 trips \times 20 mi/trip = 0.0 lb/day

Haul trucks

CO = 6.91 tons/day x 2,000 lb/ton / 822,000 mi/day x 14 trks x 20 mi/trk = 4.7 lb/day NOx = 7.41 tons/day x 2,000 lb/ton / 822,000 mi/day x 14 trks x 20 mi/trk = 5.0 lb/day ROG = 0.86 tons/day x 2,000 lb/ton / 822,000 mi/day x 14 trks x 20 mi/trk = 0.6 lb/day SOx = 0.46 tons/day x 2,000 lb/ton / 822,000 mi/day x 14 trks x 20 mi/trk = 0.3 lb/day PM $_{10}$ = 0.36 tons/day x 2,000 lb/ton / 822,000 mi/day x 14 trks x 20 mi/trk = 0.2 lb/day

Water truck

Emissions for the water truck were based on a medium heavy-duty diesel truck traveling 8 hours per day at 5 mph. The emissions include one clod start and one hot soak.

8 hr/day x 5 mi/hr = 40 mi/day

CO = 28.21 gm/mi x 40 mi/day / 454 gm/lb = 4.7 lb/day NOx = 11.14 gm/mi x 40 mi/day / 454 gm/lb = 1.0 lb/day ROG = 2.69 gm/mi x 40 mi/day / 454 gm/lb = 0.2 lb/day SOx = 0.0 gm/mi x 40 mi/day / 454 gm/lb = 0.0 lb/day PM₁₀ = (0.37 +0.01 +0.01) gm/mi x 40 mi/day / 454 gm/lb = 0.0 lb/day

RUN DATE: 04/12/02

PREDICTED CALIFORNIA VEHICLE EMISSIONS
SCENARIO TITLE: Emission Factors for SD County Year 2002
CARBON MONOXIDE PLANNING INVENTORY

22 inclusive SAN DEGO Air Basin SAN DEGO Air Basin	MVEITG vet 1.0c/DAILY EMISSIONS ALL ON-ROAD EMISSIONS LI DITY TRKS MED DITY TRKS LI DITY TRKS MED DITY AUTOS LI DITY TRKS ALL ON-ROAD EMISSIONS LI DITY AUTOS LI DITY TRKS ALL ON-ROAD EMISSIONS LI DITY AUTOS LI DITY TRKS ALL ON-ROAD EMISSIONS LI DITY AUTOS LI DITY AUTOS LI DITY AUTOS LA GAS NON-CAT GAS MUDT HIDT DIESEL MOTOR NON-CAT CAT DIESEL TOTAL NON-CAT CAT TOTAL NON-CAT CAT TOTAL NON-CAT CAT TOTAL NON-CAT CAT TOTAL DIESEL TOTAL BIESEL BUSES LO CAT LO	356 6298 1430181 1684 574808 3140 579632 123 98454 98577 5149 23996 29145 20933 50078 1321 2715 4036 12569 19305 14377 571 46233 2238954 9 112 47861 23 19534 49 19606 1 3333 3334 99 12883 605 23 2005 28 165 193 822 1015 1564 87 371 75843 652 30244 8751343 9277 3558029 18136 358542 675 609095 609770 15626 202404 218030 4479 25725 30204 0 30204 0 0 35609 13230398	∀ 0	196 0.06 38.70 0.16 13.67 0.03 13.86 0.01 3.00 3.01 0.24 0.42 0.66 0.24 0.90 0.10 0.15 0.26 0.86 1.11 1.98 0.17 1.01 60.74	1.93 0.00 2.57 0.01 0.73 0.00 0.75 0.00 0.11 0.11 0.01 0.03 0.04 0.00 0.04 0.00 0.00 0.01 0.00 0.01 0.00 0.00	18.70 0.00 24.08 0.09 6.41 0.00 6.50 0.01 0.85 0.85 0.09 0.33 0.42 0.00 0.42 0.03 0.04 0.07 0.00 0.07 0.00 0.07 0.00 0.06 31.97	.66 0.06 62.78 0.26 20.07 0.03 20.36 0.02 3.84 3.86 0.32 0.75 1.07 0.24 1.32 0.13 0.19 0.32 0.86 1.18 1.98 0.17 1.06 92.72	CARBON MONOXIDE EMISSIONS	97.08 426.48 0.41 523.97 2.39 210.32 0.18 212.89 0.14 37.46 37.60 5.24 9.24 14.48 3.46 17.95 2.27 2.44 4.72 6.91 11.62 15.54 0.17 4.79 824.53	TTROGEN EMISSIONS 46 0.01 5.19 5.19 0.74 4.07 4.81 3.3 0.00 1.50 1.50 0.00 0.00 0.00 0.00	39 0.22	PARTICULATE MATTER EMISSIONS LESS THAN 10 MICRONS 4 0.28 0.00 0.09 0.02 0.12 0.00 0.02 0.02 0.01 0.07 0.08 0.20 0.28 0.00 0.01 0.03 0.35 0.92 0.01 0.02 1.98 90 0.41 0.00 0.17 0.00 0.17 0.00 0.03 0.03 0.00 0.02 0.02 0.01 0.03 0.00 0.00 0.00 0.01 0.01 0.06 0.00 0.00	28 0 04 1.34 0 00 0.54 0.02 0.56 0.00 0.09 0.09 0.01 0.11 0.12 0.21 0.33 0.00 0.01 0.02 0.36 0.38 1.00 0.01 0.02 3.74	1 0.01 0.04 0.00 0.00 0.01 0.01 0.00 0.00
YEAR: 2002 Model Years 1968 to 2002 inclusive	MVEI7G ver 1.0c/DAIL Y EMISSIONS ALL ON-ROAD I LT DTY TRKS AC (5000 lbs 6,00 GAS LDA GAS NON-CAT CAT DIESEL TOTAL NON-CAT CAT DIESEL TOTAL NON-	NO OF IN USE VEHS 44927 1378956 6298 1430181 1684 57480 DAILY VMT (X 1000) 1260 46489 112 47861 23 19534 NO OF DAILY STRTS 176347 8538752 36244 8751343 9277 35580	REACTIVE OR RUNNING EXHAUST 9.20 11.12 0.04 20.37 0.09 5.49 0.02 5.6 START EXHAUST 1.48 16.83 0.02 18.33 0.07 8.17 0.01 8.26	SUBTOTAL EXHAUST 10.68 27.96 0.06 38.70 0.16 13.67	DIURNAL EVAPORATION 0.64 1.93 0.00 2.57 0.01 0.73 HOT SOAK EVAPORATION 1.48 4.86 0.00 6.34 0.05 1.84 RUNNING LOSSES 3.19 9.21 0.00 12.39 0.01 2.79 0.00 RESTING LOSSES 0.07 2.70 0.00 2.77 0.01 1.05 0.00	SUBTOTAL EVAPORATION 5.38 18.70 0.00 24.08 0.09 6.41	TOTAL ROG EMISSION 16.06 46.66 0.06 62.78 0.26 20.07	18.71 1.91 1C 27 0.48 101.3	TOTAL CO EMISSION 97.08 426.48 0.41 523.97 2.39 210.32	13 0.21 37.34 0.08 21 0.01 10.31 0.01 6.50	TOTAL NOX EMISSION 5.05 42.39 0.22 47.65 0.09 27.79 (0.0	0.00 0.54	0.04 0.00 0.00

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Scenario Title: EMISSION FACTORS FOR SD COUNTY YEAR 2002 YEAR: 2002 -- MODEL YEARS 1968 TO 2002 INCLUSIVE -- WINTERTIME EMFAC7G EMISSION FACTORS

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TABLE 1: WINTERTIME RUNNING I/M EXHAUST EMISSION FACTORS AT 50 DEG F

MCY	MCY	MCY	MCY	MCY	MCY
ALL	ALL	ALL	ALL	ALL	AJ.L
8.75	52.98	0.82	0.04	0.00	0.01
URBAN BUS	URBAN BUS	URBAN BUS	URBAN BUS	URBAN BUS	URBAN BUS
DIESEL	DIESEL	DIESEL	DIESEL	DIESEL	DIESEL
5.61	7.79	31.16	0.35	0.03	0.01
HH TRK	HH TRK	HH TRK	HH TRK	HH TRK	HH TRK
DIESEL	DIESEL	DIESEL	DIESEL	DIESEL	DIESEL
3.27	33.38	15.08	0.53	0.04	0.01
TRUCKS	TRUCKS	TRUCKS	TRUCKS	TRUCKS	TRUCKS
DIESEL	DIESEL	DIESEL	DIESEL	DIESEL	DIESEL
2.69	28.21	11.14	0.37	0.01	0.01
HEAVY CAT 4.93	HEAVY CAT 51.73	HEAVY CAT 4.94	HEAVY CAT 0.05	HEAVY CAT 0.01	MEDIUM HEAVY TRUCKS CAT CAT DIES:
MEDIUM HEAVY TRUCKS	MEDIUM HEAVY TRUCKS	MEDIUM HEAVY TRUCKS	MEDIUM HEAVY TRUCKS	MEDIUM HEAVY TRUCKS	MEDIUM
NCAT CAT DIESS	NCAT CAT DIESE	NCAT CAT DIESE	NCAT CAT DIESE	NCAT CAT DIESE	NCAT
18.53 4.93 2.6	262.01 51.73 28.2	8.02 4.94 11.1	0.05 0.05 0.0	0.01 0.01 0.01	0.01
LIGHT HEAVY TRUCKS NCAT CAT DIESEL .2.30 1.74 1.00	RUCKS	EAVY TRUCKS	EAVY TRUCKS	EAVY TRUCKS	HEAVY TRUCKS
	DIESEL	CAT DIESEL	CAT DIESEL	CAT DIESEL	CAT DIESEL
	18.62	2.28 6.70	0.05 0.29	0.01 0.01	0.01 0.01
HEAVY CAT 1.74	HEAVY TRUCKS CAT DIESE 25.21 18.6	114	34	,T.,	HEAVY CAT 0.01
LIGHT	LIGHT	LIGHT	LIGHT	LIGHT	LIGHT HI
NCAT	NCAT	NCAT	NCAT	NCAT	NCAT
12.30	176.83	5.24	0.05	0.01	0.01
PER MILE	PER MILE	PER MILE	PER MILE	PER MILE	
IRUCKS	TRUCKS	TRUCKS	TRUCKS	TRUCKS	
CAT	CAT	CAT	CAT	CAT	
1.47	13.92	2.51	0.00	0.01	
UNITS: GRAMS PER MILE MD. DUTY TRUCKS EL NCAT CAT 95 10.54 1.47	UNITS: GRAMS PER MILE MD. DUTY TRUCKS EL NCAT CAT 19 441.94 13.92	UNITS: GRAMS PER MILE MD. DUTY TRUCKS EL NCAT CAT 20 5.50 2.51	UNITS: GRAMS PER MILE MD. DUTY TRUCKS EL NCAT CAT 39 0.03 0.00	UNITS: GRAMS PER MILE MD. DUTY TRUCKS SEL NCAT CAT 01 0.01 0.01	UNITS: GRAMS PER MILE MD. DUTY TRUCKS EL NCAT CAT 01 0.01 0.01
· w	ıα ·	UNIT SUCKS DIESEL 2.20		UNIT UNCKS DIESEL 0.01	
LIGHT DUTY TRUCKS CAT CAT DIE:	LIGHT DUTY TRUCKS AT CAT DIE: 61 16.82 5	LIGHT DUTY TRUCKS CAT CAT DIES .86 1.81 2.	EX10 LIGHT DUTY TRUCKS CAT CAT DIES .03 0.00 0.	DUTY TE CAT 0.01	DUTY TH CAT 0.01
žo	LIGHT NCAT 477.61	LIGHT NCAT 4.86	, PMEX10 LIGHT NCAT 0.03	SS, PMTW10 LIGHT DUTY TRUCKS NCAT CAT DIES 0.01 0.01 0.	IES PMBW10 LIGHT DUTY TRUCKS NCAT CAT DIES 0.01 0.01 0.
RGANIC GASI JTOS DIESEL 0.99	OXIDE JTOS DIESEL 5.28	VITROGEN JTOS DIESEL 2.36	RTICULATES, UTOS DIESEL 0.32	PARTICULATI UTOS DIESEL 0.01	WEAR PARTICULA' TTY AUTOS CAT DIESEL
:: REACTIVE ORGANI LIGHT DUTY AUTOS PAT CAT DIE	:: CARBON MONOXIDI LIGHT DUTY AUTOS AT CAT DII 24 16.11	E: OXIDES OF NITRC LIGHT DUTY AUTOS TAT CAT DIE .56 1.17	: EXHAUST PARTICU LIGHT DUTY AUTOS AT CAT DIE	E WEAR PART DUTY AUTOS CAT DI	CE WEAR DUTY AU CAT 0.01
POLLUTANT NAME: REACTIVE ORGANIC GASES SPEED LIGHT DUTY AUTOS MPH NCAT CAT DIESEL 5 25.98 0.85 0.99	POLLUTANT NAME: CARBON MONOXIDE SPEED LIGHT DUTY AUTOS MPH NCAT CAT DIE 5 406.24 16.11 5	POLLUTANT NAME: OXIDES OF NITROGEN SPEED LIGHT DUTY AUTOS MPH NCAT CAT DIESEL 5 5.56 1.17 2.36	POLLUTANT NAME: EXHAUST PARTICULATES, PMEX10 SPEED LIGHT DUTY AUTOS LIGHT MPH NCAT CAT DIESEL NCAT 5 0.03 0.00 0.32 0.03	POLLUTANT NAME: TIRE WEAR PARTICULATES, PMTW10 SPEED LIGHT DUTY AUTOS LIGHT MPH NCAT CAT DIESEL NCAT ALL 0.01 0.01 0.01 0.01	FOLLUTANT NAME: BRAKE WEAR PARTICULATES PMBW10 SPEED LIGHT DUTY AUTOS LIGHT MPH NCAT CAT DIESEL NCAT ALL 0.01 0.01 0.01
POLLUTANT	POLLUTANT	POLLUTANT	POLLUTANT	POLLUTANT	FOLLUTANT
SPEED	SPEED	SPEED	SPEED	SPEED	SPEED
MPH	MPH	MPH	MPH	MPH	MPH
5	5	5	5	ALL	ALL